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## CLAIM AMENDMENTS

1 thru 4: (cancelled)

10 5 (currently amended) The system of claim 1 ~~28~~ wherein the host metal is palladium.

6 thru 18: (cancelled)

15 19 (currently amended) The system of claim 1 ~~28~~ wherein the host metal is in a solid form.

20 thru 27: (cancelled)

28. (new) (derived from claim 1) A system for generating solid state deuterium fusion heat comprising:

- 20
- a pressure vessel reactor; said reactor having a void space; said void space containing a host metal and deuterium gas; said deuterium gas at elevated pressure within said reactor void space and dissolved in said host metal;
  - a means of providing a vacuum in said reactor before said deuterium is introduced;
  - a means of controlling said reactor's temperature and said deuterium gas pressure to
- 25 produce elevated system ~~free~~ energy states corresponding to deuterium gas chemical potentials up to 60 kJ/mol;
- a means of transferring the generated heat to a useful load.